

67979-19

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

3/27/2014

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MAR 27 2014

Sydney Jarrett
 Syngenta Seeds, Inc. – Field Crops – NAFTA
 P.O. Box 12257
 Research Triangle Park, NC 27709-2257

Subject: Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn
 EPA Reg. No. 67979-19
 Amendment dated February 24, 2014, to extend the expiration date;
 Amendment dated July 12, 2013, to revise requirements to submit certain annual reports;
 Notification dated November 26, 2013, to add a pest to the label;
 Notification dated March 28, 2013, to correct product name on CSF.

Dear. Ms. Jarrett:

The amendments and notifications referred to above, submitted in connection with registration under FIFRA Section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, are acceptable subject to the following terms and conditions.

- 1) The subject registration will automatically expire on midnight April 1, 2016.
- 2) Submit/cite all data required for registration of your product under FIFRA section 3(c)(5) when EPA requires registrants of similar products to submit such data.
- 3) The subject registration will be limited to a seed mix of Cry1Ab [*Bacillus thuringiensis* Cry1Ab protein and the genetic material necessary for its production (via elements of vector pZO1502) in corn event Bt11 (OECD Unique Identifier: SYN-BTØ11-1)] x Vip3Aa20 [*Bacillus thuringiensis* Vip3Aa20 protein and the genetic material necessary for its production (via elements of vector pNOV1300) in corn event MIR162 (OECD Unique Identifier: SYN-IR162-4)] x Cry1F [*Bacillus thuringiensis* Cry1F protein and the genetic material necessary for its production (via elements of vector PHI8999A) in corn event TC1507 (OECD Unique Identifier: DAS-Ø15Ø7-1)] blended with not less than 5% non-Bt corn seed.
- 4) Submit/cite all data, determined by EPA to be acceptable and required to support the individual plant-incorporated protectants within the time frames required by the terms and conditions of EPA Registration Numbers 67979-1, 67979-14 and 67979-15.

CONCURRENCES

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|---------|---------|----------|---------|--|--|--|--|--|
| SYMBOL | 7511P | 7511P | 7511P | | | | | |
| SURNAME | Sebold | Reynolds | Mander | | | | | |
| DATE | 3/27/14 | 3/27/14 | 3/27/14 | | | | | |

5) You must commit to do the following Insect Resistance Management (IRM) Program, consisting of the following elements:

- Requirements relating to creation of a non-*Bacillus thuringiensis* (Bt) corn refuge in conjunction with the planting of any acreage of Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn in cotton growing regions
- Requirements for Syngenta to prepare and require Bt11 x MIR162 x TC1507 Refuge Seed Blend corn users to sign grower agreements that impose binding contractual obligations on growers to comply with the refuge requirements.
- Requirements for Syngenta to develop, implement, and report to EPA on programs to educate growers about IRM requirements.
- Requirements for Syngenta to develop, implement, and report to EPA on programs to evaluate and promote growers' compliance with IRM requirements.
- Requirements for Syngenta to develop, implement, and report to EPA on monitoring programs to evaluate whether there are statistically significant and biologically relevant changes in susceptibility to the Cry1Ab, Vip3Aa20, and/or Cry1F proteins in the target insects.
- Requirements for Syngenta to develop and, if triggered, to implement a remedial action plan that would contain measures Syngenta would take in the event that any field-relevant insect resistance was detected, as well as to report on activity under the plan to EPA.
- Requirements for Syngenta, to maintain, and provide the Agency upon request, the number of units sold by state and county, IRM grower agreement results and substantive changes to education programs. Syngenta is required to submit reports within three months of the Agency's request.
- Requirements for Syngenta, on or before August 31st of each year (beginning in 2014), to submit reports on resistance monitoring.
- Bag Tag Requirements for Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn

Seed bags and/or bag tags for corn hybrids that contain plant-incorporated protectants produced in Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn must display the registration number and active ingredients, and stipulate that growers read the Syngenta Stewardship Guide (or equivalent guidance) prior to planting these hybrids. The refuge size requirement must be displayed on the bag or bag tag in both text and graphic format.

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a. Refuge Requirements for Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn

Grower agreements (also known as stewardship agreements) will specify that growers must adhere to the refuge requirements as described in the grower guide/product use guide and/or in supplements to the grower guide/product use guide.

In cotton-growing regions where corn earworm is a significant pest:

- The 20% refuge must be planted with non-*Bt* corn hybrids.
- Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn and the 20% non-*Bt* refuge should be sown on the same day, or with the shortest window possible between planting dates.
- External refuges may be planted as an in-field or adjacent (e.g., across the road) refuge or as a separate block within 1/2 mile of the Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn field.
- In field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field, refuges must be at least four (4) rows wide.
- Insecticide treatments for control of European corn borer, corn earworm, southwestern corn borer, fall armyworm, black cutworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, and sugarcane borer may be applied only if economic thresholds are reached for one or more of these target pests. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants). Microbial *Bt* insecticides must not be applied to non-*Bt* corn refuge plants.
- Cotton-growing areas include the following states: Alabama, Arkansas, Georgia, Florida, Louisiana, North Carolina, Mississippi, South Carolina, Oklahoma (only the counties of Beckham, Caddo, Comanche, Custer, Greer, Harmon, Jackson, Kay, Kiowa, Tillman, Washita), Tennessee (only the counties of Carroll, Chester, Crockett, Dyer, Fayette, Franklin, Gibson, Hardeman, Hardin, Haywood, Lake, Lauderdale, Lincoln, Madison, Obion, Rutherford, Shelby, and Tipton), Texas (except the counties of Carson, Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, and Sherman), Virginia (only the counties of Dinwiddie, Franklin City, Greenville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, Sussex) and Missouri (only the counties of Dunklin, New Madrid, Pemiscot, Scott, Stoddard).

When on-farm assessments identify non-compliance with refuge requirements for one or more *Bt* corn products, additional educational material and assistance are provided by the registrant to help these growers meet the refuge requirements across their farming operations.

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b. Grower Agreements for Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn

- 1) Persons purchasing Bt11 x MIR162 x TC1507 Refuge Seed Blend corn must sign a grower agreement. The term grower agreement refers to any grower purchase contract, license agreement, or similar legal document.
- 2) The grower agreement and/or specific stewardship documents referenced in the grower agreement must clearly set forth the terms of the current IRM program. By signing the grower agreement, a grower must be contractually bound to comply with the requirements of the IRM program.
- 3) Syngenta must integrate this registration into the current system used for its other *Bt* corn plant-incorporated protectants, which is reasonably likely to assure that persons purchasing corn will affirm annually that they are contractually bound to comply with the requirements of the IRM program.
- 4) Syngenta must use an approved grower agreement and must submit to EPA, within ninety (90) days from the date of registration, a copy of that agreement and any specific stewardship documents referenced in the grower agreement. If Syngenta wishes to change any part of the grower agreement or any specific stewardship documents referenced in the grower agreement that would affect either the content of the IRM program or the legal enforceability of the provisions of the agreement relating to the IRM program, thirty (30) days prior to implementing a proposed change, Syngenta must submit to EPA the text of such changes to ensure that it is consistent with the terms and conditions of this registration.
- 5) Syngenta must integrate this registration into the current system used for its other *Bt* corn plant-incorporated protectants, which is reasonably likely to assure that persons purchasing Bt11 x MIR162 x TC1507 Seed Blend Corn sign grower agreement(s).
- 6) Syngenta shall maintain records of all Bt11 x MIR162 x TC1507 Refuge Seed Blend corn grower agreements for a period of three (3) years from December 31st of the year in which the agreement was signed.
- 7) Syngenta shall make available to the Agency upon request records of the number of units of Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn seed sold or shipped and not returned, and the number of such units that were sold to persons who have signed grower agreements for the previous growing season. Syngenta is required to submit reports within three months of the Agency's request.
- 8) Syngenta must allow a review of the grower agreements and grower agreement records by EPA or by a State pesticide regulatory agency if the State agency can demonstrate that confidential business information, including names, personal information, and grower license numbers of the growers, will be protected.

c. IRM Education and Compliance Monitoring Programs for Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn

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- 1) Syngenta must continue to implement and enhance (as set forth in paragraph 17 of this section) a comprehensive, ongoing, IRM education program designed to convey to Bt11 x MIR162 x TC1507 Refuge Seed Blend corn users the importance of complying with the IRM program, as well as seed blend product performance expectations and guidance to growers on actions to take when unexpected damage occurs. The program shall include information encouraging Bt11 x MIR162 x TC1507 Refuge Seed Blend corn users to pursue optional elements of the IRM program relating to refuge configuration and proximity to Bt11 x MIR162 x TC1507 Refuge Seed Blend corn fields. The education program shall involve the use of multiple media (e.g., face-to-face meetings, mailing written materials, EPA-reviewed language on IRM requirements on the bag or bag tag, and electronic communications such as by Internet, radio, or television commercials). Copies of the materials will be provided to EPA for its records. The program shall involve at least one (1) written communication annually to each Bt11 x MIR162 x TC1507 Refuge Seed Blend corn user separate from the grower technical guide. The communication shall inform the user of the current IRM requirements. Syngenta shall coordinate its education programs with educational efforts of other registrants and organizations, such as the National Corn Growers Association and state extension programs.
- 2) Annually, Syngenta shall continue to revise, and expand as necessary, its education program to take into account the information collected through the compliance survey, required under paragraphs 6–9 of this section, and from other sources. The changes shall address aspects of grower compliance that are not sufficiently high.
- 3) Upon EPA request, Syngenta shall provide copies of grower education materials and information on grower education activities including any substantive changes to these materials and activities conducted either individually or as part of the industry working group ABSTC. Syngenta is required to submit reports within three months of the Agency's request.
- 4) Syngenta must continue to implement and improve an ongoing IRM compliance assurance program designed to evaluate the extent to which growers purchasing Bt11 x MIR162 x TC1507 Refuge Seed Blend corn are complying with the IRM program and that takes such actions as are reasonably needed to assure that growers who have not complied with the program either do so in the future or lose their access to Syngenta *Bt* corn products. Syngenta shall coordinate with other *Bt* corn registrants in improving its compliance assurance program and integrate this registration into the current compliance assurance program used for its other *Bt* corn plant-incorporated protectants. Other required features of the program are described in paragraphs 5–22 of this section.
- 5) Syngenta must continue to maintain and publicize a phased compliance approach (i.e., a guidance document that indicates how it will address instances of non-compliance with the terms of the IRM program and general criteria for choosing among options for responding to any non-compliant growers after the first year of non-compliance). While recognizing that for reasons of difference in business practices there are needs for flexibility between different companies, Syngenta must use a consistent set of standards for responding to non-compliance. An individual grower found to be significantly out of compliance two (2) years in a row would be denied access

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to Syngenta's *Bt* corn products the next year. Similarly, seed dealers who are not fulfilling their obligations to inform/educate growers of their IRM obligations will lose their opportunity to sell Syngenta *Bt* corn.

6) The IRM compliance assurance program shall include an annual survey, conducted by an independent third party, of a statistically representative sample of growers of Bt11 x MIR162 x TC1507 Refuge Seed Blend corn who plant the vast majority of all corn in the United States and in areas in which the selection intensity is greatest. The survey shall consider only those growers who plant 200 or more acres of corn in the Corn Belt and who plant 100 or more acres of corn in corn-cotton areas. The survey shall measure the degree of compliance with the IRM program by growers in different regions of the country and consider the potential impact of non-response. The sample size and geographical resolution may be adjusted annually, based upon input from independent marketing research firms and academic scientists, to allow analysis of compliance behavior within regions or between regions. The sample size must provide a reasonable sensitivity for comparing results across the United States.

- i. A third party is classified as a party other than Syngenta, the grower, or anyone else with a direct interest in IRM compliance for *Bt* corn.

7) The survey shall be designed to provide an understanding of any difficulties growers encounter in implementing IRM requirements. An analysis of survey results must include the reasons, extent, and potential biological significance of any implementation deviations.

8) The survey shall be designed to obtain grower feedback on the usefulness of specific educational tools and initiatives.

9) Syngenta shall provide a final written summary of the results of the prior year's survey (together with a description of the regions, the methodology used, and the supporting data) to EPA on or before January 31st of each year. Syngenta shall confer with other registrants and EPA on the design and content of the survey prior to its implementation.

10) Annually, Syngenta shall revise, and expand as necessary, its compliance assurance program to take into account the information collected through the compliance survey, required under paragraphs 6–9 of this section, and from other sources. The changes shall address aspects of grower compliance that are not sufficiently high. Syngenta must confer with EPA prior to adopting any changes.

11) Syngenta shall conduct an annual on-farm assessment program. Syngenta shall train its representatives who make on-farm visits with Bt11 x MIR162 x TC1507 Refuge Seed Blend corn growers to perform assessments of compliance with IRM requirements. There is no minimum corn acreage size for this program. Therefore, growers will be selected for this program from across all farm sizes. In the event that any of these visits result in the identification of a grower who is not in compliance with the IRM program, Syngenta shall take appropriate action, consistent with its phased compliance approach, to promote compliance.

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12) Syngenta shall continue to carry out a program for investigating legitimate tips and complaints that Bt11 x MIR162 x TC1507 Refuge Seed Blend corn growers are not in compliance with the IRM program. Whenever an investigation results in the identification of a grower who is not in compliance with the IRM program, Syngenta shall take appropriate action, consistent with its phased compliance approach.

13) If a grower, who purchases Bt11 x MIR162 x TC1507 Refuge Seed Blend corn for planting, was specifically identified as not being in compliance during the previous year, Syngenta shall visit with the grower and evaluate whether the grower is in compliance with the IRM program for the current year.

14) Annually, by January 31 each year, Syngenta shall provide a report to EPA summarizing the activities carried out under its compliance assurance program for the prior year and the plans for the compliance assurance program during the current year. Within one (1) month of submitting this report to EPA, Syngenta shall meet with EPA to discuss its findings. The report will include information regarding grower interactions (including, but not limited to, on-farm visits, verified tips and complaints, grower meetings and letters), the extent of non-compliance, corrective measures to address the non-compliance, and any follow-up actions taken. The report must inform EPA of the number of growers deemed ineligible to purchase *Bt* corn seed on the basis of continued non-compliance with the insect resistance management refuge requirements. Syngenta may elect to coordinate information with other registrants and report collectively the results of compliance assurance programs.

15) Syngenta and the seed corn dealers for Syngenta must allow a review of the compliance records by EPA or by a State pesticide regulatory agency if the State agency can demonstrate that confidential business information, including the names, personal information, and grower license numbers of the growers, will be protected.

16) Syngenta must continue to use an enhanced compliance assurance program with the following elements. Syngenta may coordinate with other registrants in designing and implementing its compliance assurance program.

17) Syngenta will continue to enhance the refuge education program throughout the seed delivery channel:

- i. Ensure sales representatives, licensees, seed dealers, and growers recognize the importance of correct refuge implementation and potential consequences of failure to plant the required refuge.
- ii. Include the refuge size requirement on all Bt11 x MIR162 x TC1507 Refuge Seed Blend corn seed bags or bag tags. The Bt11 x MIR162 x TC1507 Refuge Seed Blend corn label accepted by EPA must include how this information will be conveyed to growers via text and graphics.

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18) Syngenta will continue to focus the majority of on-farm assessments on regions with the greatest risk for resistance:

- i. Use *Bt* corn adoption, pest pressure information, and other available information to identify regions where the risk of resistance is greatest.
- ii. Focus approximately two-thirds of on-farm assessments on these regions, with the remaining assessments conducted across other regions where Bt11 x MIR162 x TC1507 Refuge Seed Blend corn is used.

19) Syngenta will continue to use its available Bt11 x MIR162 x TC1507 Refuge Seed Blend corn sales records and other information to refine grower lists for on-farm assessments of their compliance with refuge requirements:

- i. Identify for potential on-farm assessment growers whose sales information indicates they have purchased Bt11 x MIR162 x TC1507 Refuge Seed Blend corn but may have purchased little or no refuge seed from Syngenta, licensees, or affiliated companies.

20) Syngenta will contract with third parties to perform on-farm assessments of compliance with refuge requirements:

- i. The third-party assessors will conduct all first-time on-farm assessments, as well as second-year on-farm assessments, of those growers found out of compliance in a first-time assessment.

21) Annually, Syngenta will refine the on-farm assessment program for Bt11 x MIR162 x TC1507 Refuge Seed Blend corn to reflect the adoption rate and level of refuge compliance for Bt11 x MIR162 x TC1507 Refuge Seed Blend corn.

22) Syngenta will follow up with growers who have been found significantly out of compliance under the on-farm assessment program and are found to be back in compliance the following year:

- i. All growers found to be significantly out of compliance in a prior year will annually be sent additional refuge assistance information for a minimum of two (2) years by Syngenta, a seed supplier, or a third-party assessor, after completing the assessment process.
- ii. Syngenta will conduct follow-up checks on growers found to be significantly out of compliance within three (3) years after they are found to be back in compliance.

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- iii. A grower found with a second incident of significant non-compliance with refuge requirements for Bt11 x MIR162 x TC1507 Refuge Seed Blend corn within a 5-year period will be denied access to Syngenta's Bt corn products the next year.

da Insect Resistance Monitoring and Remedial Action Plan for Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn

EPA is imposing the following conditions for the Cry1Ab, Vip3Aa20, and Cry1F toxins expressed in Bt11 x MIR162 x TC1507 Refuge Seed Blend corn:

Syngenta will monitor for resistance to Cry1Ab, Vip3Aa20, and Cry1F expressed in Bt11 x MIR162 x TC1507 Refuge Seed Blend corn. The monitoring program shall consist of two approaches: (1) focused population sampling and laboratory testing; and (2) investigation of reports of less-than expected control of labeled insects along with guidance specific for seed blends. Should field-relevant resistance be confirmed, an appropriate resistance management action plan will be implemented.

Focused Population Sampling

Syngenta shall annually sample and bioassay populations of the key target pests: *Ostrinia nubilalis* (European corn borer; ECB) – Cry1Ab and Cry1F only, *Diatraea grandiosella* (southwestern corn borer; SWCB), and *Helicoverpa zea* (corn earworm; CEW). Sampling for the target pests will be focused in areas identified as those with the highest risk of resistance development (e.g., where lepidopteran-active Bt hybrids are planted on a high proportion of the corn acres, and where the insect species are regarded as key pests of corn). Bioassay methods must be appropriate for the goal of detecting field-relevant shifts in population response to Bt11 x MIR162 x TC1507 Refuge Seed Blend corn and/or changes in resistance allele frequency in response to the use of Bt11 x MIR162 x TC1507 Refuge Seed Blend corn and, as far as possible, should be consistent across sampling years to enable comparisons with historical data.

The number of populations to be collected shall reflect the regional importance of the insect species as a pest, and specific collection regions will be identified for each pest. For ECB, a minimum of twelve (12) populations across the sampling region will be targeted for collection at each annual sampling. For SWCB, the target will be a minimum of six (6) populations. For CEW, the target will be a minimum of ten (10) populations. Pest populations should be collected from multiple corn-growing states reflective of different geographies and agronomic conditions. To obtain sufficient sensitivity to detect resistance alleles before they become common enough to cause measurable field damage, each population collection shall attempt to target 400 insect genomes (egg masses, larvae, mated females, and/or mixed-sex adults), but a successful population collection will contain a minimum of 100 genomes. It is recognized that it may not be possible to collect the target number of insect populations or genomes due to factors such as natural fluctuations in pest density, environmental conditions, and area-wide pest suppression.

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The sampling program and geographic range of collections may be modified as appropriate based on changes in pest importance and for the adoption levels of Bt11 x MIR162 x TC1507 Refuge Seed Blend corn. EPA shall be consulted prior to the implementation of such modifications.

Syngenta will report to EPA, on or before August 31st of each year (beginning in 2014), the results of the population sampling and bioassay monitoring program.

Any incidence of unusually low sensitivity to the Cry1Ab, Vip3Aa20, and/or Cry1F proteins in bioassays shall be investigated as soon as possible to understand any field relevance of such a finding. Such investigations shall proceed in a stepwise manner until the field relevance can be either confirmed or refuted, and results of these shall be reported to EPA annually on or before August 31st, beginning in 2014. The investigative steps will include the following:

1. Re-test progeny of the collected population to determine whether the unusual bioassay response is reproducible and heritable. If it is not reproducible and heritable, no further action is required.
2. If the unusual response is reproducible and heritable, progeny of insects that survive the diagnostic concentration will be tested using methods that are representative of exposure to Bt11 x MIR162 x TC1507 Refuge Seed Blend corn under field conditions. If progeny do not survive to adulthood, any suspected resistance is not field relevant and no further action is required.
3. If insects survive steps 1 and 2, resistance is confirmed, and further steps will be taken to evaluate the resistance. These steps may include the following:
 - determining the nature of the resistance (i.e., recessive or dominant, and the level of functional dominance);
 - estimating the resistance allele frequency in the original population;
 - determining whether the resistance allele frequency is increasing by analyzing field collections in subsequent years sampled from the same site where the resistance allele(s) was originally collected;
 - determining the geographic distribution of the resistance allele by analyzing field collections in subsequent years from sites surrounding the site where the resistance allele(s) was originally collected.

Should field-relevant resistance be confirmed, and the resistance appears to be increasing or spreading, Syngenta will consult with EPA to develop and implement a case-specific remedial action plan.

Investigation of Reports of Unexpected Levels of Damage by the Target Pests

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Syngenta will follow up on grower, extension specialist, or consultant reports of unexpected levels of damage by the lepidopteran pests listed on the pesticide label. Syngenta will instruct its customers to contact them if such incidents occur. Syngenta will investigate all legitimate reports submitted to the company or the company's representatives.

If reports of unexpected levels of damage lead to the suspicion of resistance in any of the key target pests (ECB, SWCB, and CEW), Syngenta will implement the actions described below, based on the following definitions of *suspected resistance* and *confirmed resistance*.

Suspected Resistance

EPA defines *suspected resistance* to mean field reports of unexpected levels of insect-feeding damage for which:

- the corn in question has been confirmed to be lepidopteran-active *Bt* corn;
- the seed used had the proper percentage of corn expressing *Bt* protein;
- the relevant plant tissues are expressing the expected level of *Bt* protein; and
- it has been ruled out that species not susceptible to the protein could be responsible for the damage, that no climatic or cultural reasons could be responsible for the damage, and that there could be no other reasonable causes for the damage.

EPA does not interpret *suspected resistance* to mean grower reports of possible control failures or suspicious results from annual insect monitoring assays, nor does EPA intend that extensive field studies and testing be undertaken to confirm scientifically the presence of insects resistant to Bt11 x MIR162 x TC1507 Refuge Seed Blend corn in commercial production fields before responsive measures are undertaken.

If resistance is *suspected*, Syngenta will instruct growers to do the following:

- Use alternative control measures in Bt11 x MIR162 x TC1507 Refuge Seed Blend corn fields in the affected region to control the target pest during the immediate growing season.
- Destroy Bt11 x MIR162 x TC1507 Refuge Seed Blend corn crop residues in the affected region within one (1) month after harvest with a technique appropriate for local production practices to minimize the possibility of resistant insects over-wintering and contributing to the next season's target pest population.

Additionally, if possible, and prior to the application of alternative control measures or destruction of crop residues, Syngenta will collect samples of the insect population in the affected fields for laboratory rearing and testing. Such rearing and testing shall be conducted as expeditiously as practical.

Confirmed Resistance

EPA defines ***confirmed resistance*** to mean, in the case of field reports of unexpected levels of damage from the key target pests, that all the following criteria are met:

- There is >30% insect survival and commensurate insect feeding in a bioassay, initiated with neonate larvae, that uses methods that are representative of exposure to *Bt* corn hybrids under field conditions (ECB and SWCB only).
- In standardized laboratory bioassays using diagnostic concentrations of the *Bt* protein suited to the target pest in question, the pest exhibits resistance that has a genetic basis and the level of survivorship indicates that there may be a resistance allele frequency of ≥ 0.1 in the sampled population.
- In standardized laboratory bioassays, the LC_{50} exceeds the upper limit of the 95% confidence interval of the LC_{50} for susceptible populations surveyed both in the original baselines developed for this pest species and in previous years of field monitoring.

Response to Confirmed Resistance in a Key Target Pest as the Cause of Unexpected Levels of Damage in the Field

When field resistance is ***confirmed*** (as defined above), the following steps will be taken by Syngenta:

- EPA will receive notification within thirty (30) days of resistance confirmation;
- Affected customers and extension agents will be notified about confirmed resistance within thirty (30) days;
- Monitoring will be increased in the affected area and local target pest populations will be sampled annually to determine the extent and impact of resistance;
- If appropriate (depending on the resistant pest species, the extent of resistance, the timing of resistance, and the nature of resistance, and the availability of suitable alternative control measures), alternative control measures will be employed to reduce or control target pest populations in the affected area. Alternative control measures may include advising customers and extension agents in the affected area to incorporate crop residues into the soil following harvest to minimize the possibility of over-wintering insects, and/or applications of chemical insecticides;

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- Unless otherwise agreed with EPA, stop sale and distribution of the relevant lepidopteran-active *Bt* corn hybrids in the affected area immediately until an effective local mitigation plan, approved by EPA, has been implemented;
- Syngenta will develop a case-specific resistance management action plan within ninety (90) days according to the characteristics of the resistance event and local agronomic needs. Syngenta will consult with appropriate stakeholders in the development of the action plan, and the details of such a plan shall be approved by EPA prior to implementation;
- Notify affected parties (e.g., growers, consultants, extension agents, seed distributors, university cooperators, and state/federal authorities as appropriate) in the region of the resistance situation and approved action plan; and
- In subsequent growing seasons, maintain sales suspension and alternative resistance management strategies in the affected region(s) for the *Bt* corn hybrids that are affected by the resistant population until an EPA-approved local resistance management plan is in place to mitigate the resistance.

A report on results of resistance monitoring and investigations of damage reports must be submitted to EPA, on or before August 31st of each year, for the duration of the registration.

e. Annual Reporting Requirements for Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn

- 1) Compliance Assurance Program: compliance assurance program activities including IRM Grower Survey results and on-farm assessment results for the prior year and plans for the compliance assurance program for the current year, on or before January 31st of each year, beginning in 2014.
- 2) Insect Resistance Monitoring Results: results of monitoring and investigations of damage reports, on or before August 31st of each year.
- 3) EZ Refuge Corn Manufacturing System Results: Documentation from qualification test runs that validate blend percentages from Syngenta's third party contractors and Syngenta licensees that produce Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn must be provided along with the number of licensees using seed color to differentiate refuge and PIP seed provided, on or before January 31st of each year, beginning in 2014.

**f. Seed Blend Refuge Assurance Program for Bt11 x MIR162 x TC1507
Refuge Seed Blend Corn**

Syngenta must implement its EZ Refuge Corn Manufacturing System to ensure Bt11 x MIR162 x TC1507 Refuge Seed Blend Corn products are formulated with the appropriate rate of refuge seeds. All blending records

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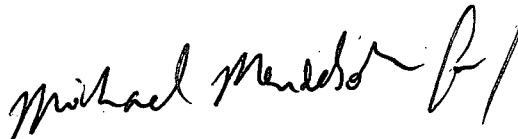
must be maintained at the Syngenta blending facilities, third party contractors, and Syngenta licensees and must be available for EPA review upon request.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of this product constitutes acceptance of these conditions.

The basic confidential statement of formula (CSF) dated 3/24/2014 is acceptable and supersedes all previous basic CSFs. A copy has been placed in the file jacket for this registration.

A stamped copy of the label is enclosed for your records.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Mendelsohn" followed by a stylized flourish or initials.

Kimberly Nesci, Chief
Microbial Pesticides Branch
Biopesticides and Pollution Prevention Division (7511P)

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Bt11×MIR162×TC1507 Refuge Seed Blend Corn

[Alternate brand name: *Agrisure Viptera™ 3220 E-Z refuge™*]

Plant-incorporated protectant: Cry1Ab, Vip3Aa20 and Cry1F insecticidal proteins

This product is effective in controlling corn leaf, stalk, and ear damage caused by corn borers and other lepidopteran pests

Active Ingredients:

Bacillus thuringiensis Cry1Ab protein and the genetic material necessary for its production (via elements of vector pZO1502) in corn event Bt11 (SYN-BTØ11-1).....≤0.00103%*

Bacillus thuringiensis Vip3Aa20 protein and the genetic material necessary for its production (via elements of vector pNOV1300) in corn event MIR162 (SYN-IR162-4)..... ≤0.00256%*

Bacillus thuringiensis Cry1F protein and the genetic material necessary for its production (via elements of vector PHI8999) in corn event TC1507 (DAS-Ø15Ø7- 1).....≤0.00077%*

Other Ingredients:

Phosphinothricin acetyltransferase protein and the genetic material necessary for its production (via elements of vector pZO1502) in corn event Bt11 (SYN-BTØ11-1) and (via elements of vector PHI8999) in corn event TC1507 (DAS-Ø15Ø7-1).....≤0.00017%*

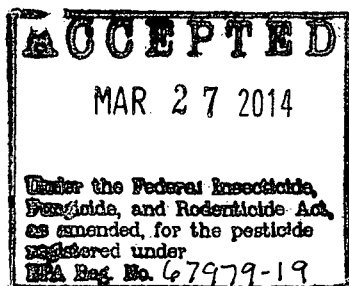
Phosphomannose isomerase protein and the genetic material necessary for its production (via elements of vector pNOV1300) in corn event MIR162 (SYN-IR162-4)≤0.00025%*

*Percent (wt/wt) of whole plant on a dry weight basis

CAUTION
KEEP OUT OF REACH OF CHILDREN

EPA Registration No. 67979-19
EPA Establishment No. 66736-NC-01

Syngenta Seeds, Inc.
P.O. Box 12257
3054 East Cornwallis Rd.
Research Triangle Park, NC 27709



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DIRECTIONS FOR USE

It is a violation of federal law to use this product in any manner inconsistent with this labeling.

Insects Controlled or Suppressed

Bt11×MIR162×TC1507 Refuge Seed Blend Corn has been genetically transformed to produce the insecticidal proteins, Cry1Ab, Vip3Aa20, and Cry1F, for control or suppression of the following lepidopteran insects and associated leaf, stalk and ear damage:

European corn borer (*Ostrinia nubilalis*)
Southwestern corn borer (*Diatraea grandiosella*)
Southern cornstalk borer (*Diatraea crambidoides*)
Corn earworm (*Helicoverpa zea*)
Fall armyworm (*Spodoptera frugiperda*)
Beet armyworm (*Spodoptera exigua*)
True armyworm (*Pseudaletia unipuncta*)
Black cutworm (*Agrotis ipsilon*)
Western bean cutworm (*Striacosta albicosta*)
Sugarcane borer (*Diatraea saccharalis*)
Lesser cornstalk borer (*Elasmopalpus lignosellus*)
Dingy Cutworm (*Feltia jaculifera*)
Common stalk borer (*Papaipema nebris*)

Insect Resistance Management

Each bag of Bt11×MIR162×TC1507 Refuge Seed Blend Corn contains a blend of 95% Bt11×MIR162×TC1507 seed and 5% non-Bt refuge seed.

The following information regarding commercial production of Bt11×MIR162×TC1507 Refuge Seed Blend Corn must be included in the Grower Guide (or equivalent).

IRM Requirements for Corn-Growing Areas of the U.S.

Refuge seed is blended into each bag of Bt11×MIR162×TC1507 Refuge Seed Blend Corn. There is no requirement for growers to plant a separate structured refuge for managing resistance risk in corn-growing areas of the U.S. Corn-growing areas are those counties and states not defined below as comprising the cotton-growing areas of the U.S. Read the Syngenta Stewardship Guide.

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IRM Requirements for Cotton-Growing Areas of the U.S.

In cotton-growing areas growers who plant Bt11×MIR162×TC1507 Refuge Seed Blend Corn must plant a supplemental 20% structured refuge. The following table lists those states and counties identified by the Environmental Protection Agency (EPA) as cotton-growing areas.

| State | Counties Identified by EPA as Cotton-Growing Areas | | | |
|----------------|--|---|-------------------------------------|--|
| Alabama | All Counties | | | |
| Arkansas | All Counties | | | |
| Florida | All Counties | | | |
| Georgia | All Counties | | | |
| Louisiana | All Counties | | | |
| Mississippi | All Counties | | | |
| Missouri | Dunklin Stoddard | New Madrid | Pemiscot | Scott |
| North Carolina | All Counties | | | |
| Oklahoma | Beckham Greer Kiowa | Caddo Harmon Tillman | Comanche Jackson Washita | Custer Kay |
| South Carolina | All Counties | | | |
| Tennessee | Carroll Fayette Hardin Lincoln Shelby | Chester Franklin Haywood Madison Tipton | Crockett Gibson Lake Obion | Dyer Hardeman Lauderdale Rutherford |
| Texas | All counties with the exception of the following: Carson Hutchinson Roberts | Dallam Lipscomb Sherman | Hansford Moore | Hartley Ochiltree |
| Virginia | Dinwiddie Northampton Sussex | Franklin City Southampton | Greensville Suffolk City | Isle of Wight Surrey |

The 20% supplemental refuge must be planted with hybrids that do not contain Bt technologies. The supplemental refuge can be planted as strips within the field, perimeter strips, a block within the field, a block adjacent to the field, or a separate block within ½ mile of the Bt11×MIR162×TC1507 Refuge Seed Blend Corn field. If in-field or perimeter strips are implemented, the strips must be at least four consecutive rows wide.

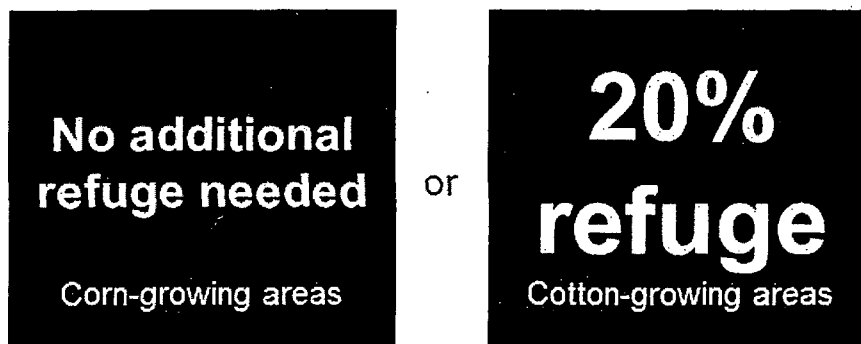
The supplemental refuge in cotton-growing areas can be protected from feeding damage by application of non-Bt microbial insecticides if the population of one or more lepidopteran pests

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exceeds economic thresholds. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents or crop consultants). In addition, the supplemental refuge can be protected from corn rootworm feeding damage by use of an appropriate seed treatment or conventional insecticide. However, insecticides labeled for adult corn rootworm control must be avoided in the supplemental refuge during the period of corn rootworm adult emergence.

The following text and graphic indicating the supplemental refuge size requirement will appear on Bt11×MIR162×TC1507 Refuge Seed Blend Corn bags or bag tags.

**Important grower information.
Supplemental refuge planting requirement.**



**For more information, please refer
to Syngenta Stewardship Guide.**